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Investigating the magnetic structure of Ruthenium based 2H-perovskites.

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We are currently investigating the magnetic behaviour of Sr3XRuO6 (X=Li, Na) [1], these compounds belong to the family of the hexagonal perovskite oxides A3A'BO6 [2]. Principal members of this family are Ca3Co2O6 [2,3], Sr3NiIrO6[4]; the most closely related member to the ones presented here is Ca3LiOsO6 [5]. These compounds are structurally characterized by infinite 1D chains of octahedra and trigonal prisms containing a transition metal oxide running along the c-axis in the hexagonal setting. Due to this configuration, they were first thought to behave as 1D magnetic systems in the low temperature phase. In reality the inter-chain magnetic exchange interactions are strong and play a fundamental role in stabilizing the complex magnetic ordering found in these compounds. I will present the results from recent resonant magnetic scattering experiments clearly indicating that both the samples order antiferromagnetically with a propagation vector (0,0,0), FDMNES code and magnetic scattering simulations in the dipolar approximation have been used to model the data. Further investigations will be necessary to fully confirm the magnetic structure.

References:
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